

IN THE CLAIMS:

Claim 1 (Original): A substrate for a protein array, comprising a substrate to which a polymer compound having a primary amino group in a repeating structure is bound.

Claim 2 (Original): The substrate for a protein array according to claim 1, wherein the substrate to which the polymer compound having a primary amino group in a repeating structure is bound has water absorbability.

Claim 3 (Currently Amended): The substrate for a protein array according to ~~any one of claims~~ claim 1 ~~to 3~~, wherein the polymer compound having a primary amino group in a repeating structure is polyallylamine.

Claim 4 (Currently Amended): The substrate for a protein array according to ~~any one of claims~~ claim 1 ~~to 3~~, wherein the polymer compound having a primary amino group in a repeating structure is polylysine.

Claim 5 (Currently Amended): A protein array comprising a protein represented by formula (I) aligned and immobilized on the substrate for a protein array according to ~~any one of claims~~ claim 1 ~~to 4~~ so that the carboxyl terminal of the protein main chain represented by formula (I) is immobilized by a peptide bond to the primary amino group of the polymer compound bound to the substrate:



wherein R₁ represents any amino acid sequence.

Claim 6 (Currently Amended): A protein array comprising a protein represented by formula (IV) aligned and adsorbed on the substrate for a protein array according to ~~any one of claims~~ claim 1 to 4 so that the protein represented by the above formula (IV) is immobilized in an adsorbed state:



wherein R₁ represents any amino acid sequence; and R₂ represents an amino acid sequence which is negatively-charged strongly at around neutral and is capable of acidifying the isoelectric point of the protein represented by the above formula (IV).

Claim 7 (Currently Amended): The protein array according to claim 5 ~~or 6~~, wherein the protein to be immobilized has an amino acid sequence of a linker peptide.

Claim 8 (Currently Amended): A process for producing a protein array comprising a protein represented by formula (I) aligned and immobilized on the substrate for a protein array according to ~~any one of claims~~ claim 1 to 4:



wherein R₁ represents any amino acid sequence,

said method comprising reacting a protein represented by formula (II):



wherein R₁ represents any amino acid sequence; and R₂ represents an amino acid sequence which is negatively-charged strongly at around neutral and is capable of acidifying the isoelectric point of the protein represented by the above formula (II),

with a polymer compound on the substrate for a protein array to thereby bind the carboxyl terminal of the protein main chain of formula (II) to a primary amino group of the polymer compound by a peptide bond.

Claim 9 (Original): The process for producing a protein array according to claim 8, wherein the protein represented by formula (II) is formed by aligning and adsorbing a protein represented by formula (III):



wherein R₁ represents any amino acid sequence; and R₂ represents an amino acid sequence which is negatively-charged strongly at around neutral and is capable of acidifying the isoelectric point of the protein represented by the above formula (III),

on a substrate for a protein array, followed by reaction with a cyanation reagent.

Claim 10 (Currently Amended): A process for producing a protein array, which comprises aligning and adsorbing a protein represented by formula (IV):



wherein R₁ represents any amino acid sequence; and R₂ represents an amino acid sequence which is negatively-charged strongly at around neutral and is capable of acidifying the isoelectric point of the protein represented by the above formula (IV),

on the substrate for a protein array according to ~~any one of claims~~ claim 1 ~~to 4~~ to thereby immobilize the protein in an adsorbed state.

Claim 11 (Currently Amended): The process for producing a protein array according to ~~any one of claims~~ claim 8 ~~to 10~~, wherein the protein to be immobilized has an amino acid sequence of a linker peptide.

Claim 12 (Currently Amended): The process for producing a protein array according to ~~any one of claims~~ claim 8 ~~to 11~~, wherein a means for aligning the protein on the substrate for a protein array is a microcapillary or a needle-like article.

Claim 13 (Currently Amended): The process for producing a protein array according to ~~any one of claims~~ claim 8 ~~to 11~~, wherein a means for aligning the protein on the substrate for a protein array is an ink-jet process.

Claim 14 (New): The process for producing a protein array according to claim 10, wherein the protein to be immobilized has an amino acid sequence of a linker peptide.

Claim 15 (New): The process for producing a protein array according to claim 10, wherein a means for aligning the protein on the substrate for a protein array is a microcapillary or a needle-like article.

Claim 16 (New): The process for producing a protein array according to claim 10, wherein a means for aligning the protein on the substrate for a protein array is an ink-jet process.